RESTORATION AND ACQUISITION OF BREEDING HABITAT

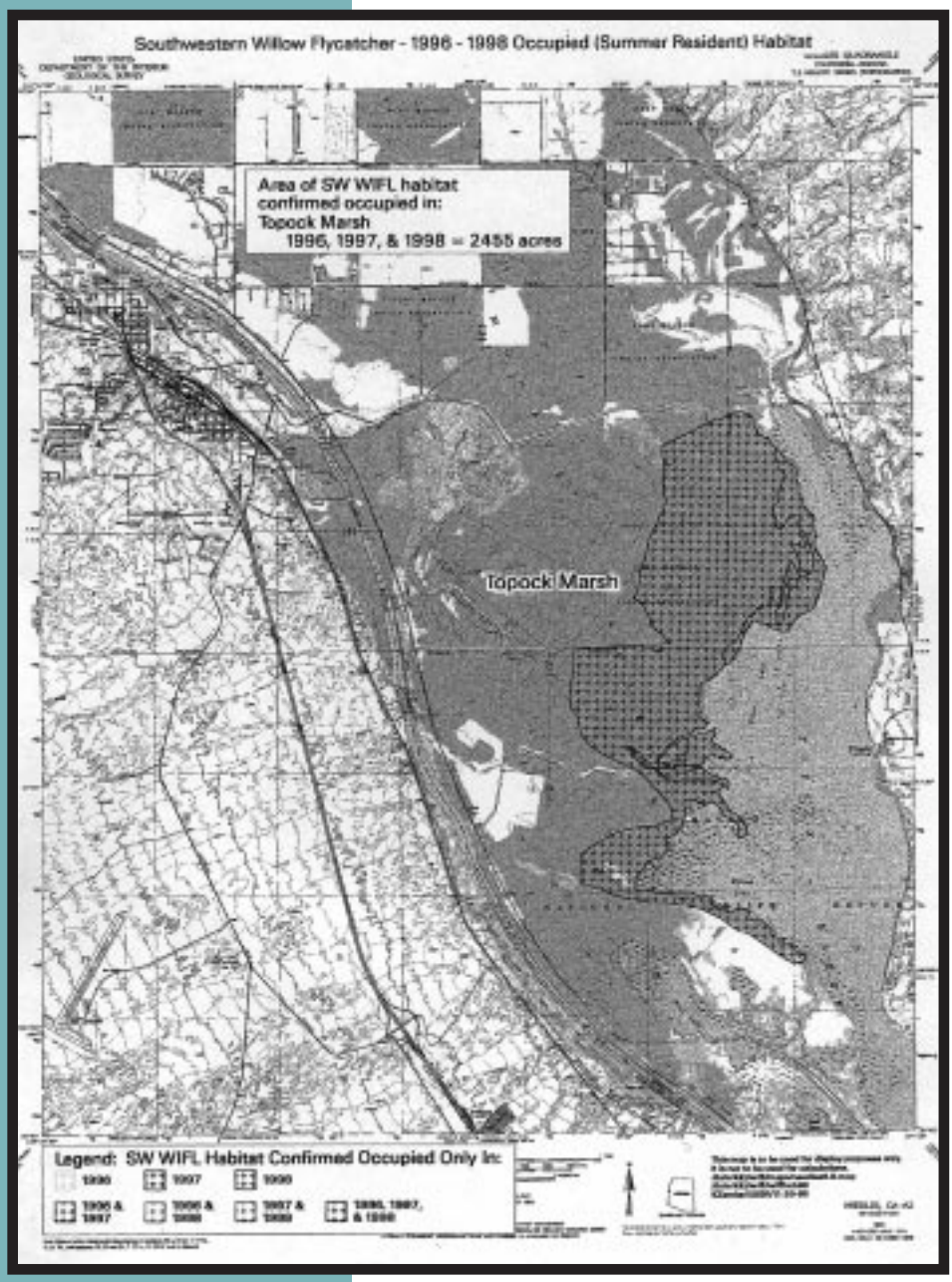

Figure 19. Occupied habitat at Topock marsh near Needles, California.

RPA#11 states "...Reclamation shall present a plan to the MSCP for funding and implementation of the long-term program, e.g., through acquisition, easements, partnerships, ecological restoration, etc., with the goal of initiating implementation by May 15, 2001. Alternative off-site compensation approaches that may be developed through the MSCP, that are aimed at achieving the same goals, could satisfy this provision" (USFWS, 1997). In order to expedite this process, this report lists potential areas along the Lower Colorado River (Figure 18) and elsewhere within the range of the southwestern willow flycatcher where restoration, protection, and acquisition of flycatcher breeding habitat may be accomplished.

The Nature Conservancy (TNC), under a grant from Reclamation, is evaluating potential off-site areas where protection measures, such as habitat acquisition or conservation easements, could be obtained to further benefit the southwestern willow flycatcher. The initial interim report focused on the Upper Gila River, the San Pedro River, and the Virgin River as these drainages have been identified as the highest priority sites within the range of the flycatcher. A synopsis of the TNC interim report is included in this document. Some of the information found within the TNC interim report is confidential, such as landowner names and addresses, so the report itself is not included within this document; however, this information is available at the Bureau of Reclamation Lower Colorado Regional Office for MSCP use. The final TNC report, due July 1, 1999, will be made available to the MSCP Steering Committee upon its reception.

Lower Colorado River

The majority of the occupied and potentially suitable but unoccupied habitat is currently under federal ownership. The one remaining large block of occupied habitat not under federal control is an approximately 600 acre patch on the west side of Topock Marsh, near Needles, California, that is within the reservation boundaries of the Fort Mojave Tribe. This block of occupied habitat is contiguous with an additional 1,900 acres of occupied habitat on Havasu National Wildlife Refuge (Figure 19). Reclamation is currently negotiating with the tribe to secure a long-term lease to protect this important habitat.

Opportunities exist for restoration and enhancement of southwestern willow flycatcher breeding habitat along the Lower Colorado River. Most of these opportunities require intensive management of the resource. Riparian restoration projects along the Lower Colorado have met with limited success in the past (Pinckney, 1992; Briggs, 1992; Briggs and Cornelius, 1997). Water availability, water table fluctuation, and soil salinity have been identified as large obstacles that must be incorporated into any riparian restoration project plan along the Lower Colorado River. Recent studies have indicated that soil salinity may be increasing in many areas of the Colorado River (USBR, 1998). Restoration projects for willow flycatchers present several additional concerns. Riparian vegetation should be grown in dense patches and water must be present near or within the stand to simulate flycatcher habitat. Other factors not presently known or understood may also have to be incorporated into future restoration projects. Non-biological roadblocks must also be overcome, such as acquisition of water rights, funding, and political concerns over acquisition of private lands.

Opportunities within the Yuma Valley

Although the Yuma Valley has undergone extensive man-cause changes since the turn of the century, some of the best opportunities for restoration and enhancement of flycatcher habitat exist there. The Limitrophe Division, which extends from the Northerly International Boundary above Morelos Dam to the Southerly International Boundary, contains occupied habitat near Gadsden, Arizona. A series of backwater areas, surrounded by dense willow and saltcedar, at Gadsden Bend and at Hunter's Hole have been identified as occupied and potentially suitable but unoccupied habitat. More potential habitat exists just below Morales Dam on the Cocopah Reservation.

In order to maintain existing habitat and enhance other portions of the Limitrophe, water is needed. The existing riparian vegetation is a result of the winter flood of 1992-93. Periodic flood control releases have enabled this habitat to survive since the '93 flood. To maintain and enhance this area, some flow must be allowed to pass Morelos periodically, or an alternative, such as pumping agricultural waste water directly into the suitable habitat,

must be arranged. The former alternative would enable large-scale natural restoration to occur if annual releases were allowed to flow past Morelos Dam. The latter alternative would allow for the maintenance of existing habitat and, with adequate agricultural return flow, the restoration of limited areas along the US side of the river.

The Limitrophe Division also has some limited opportunities for more intensively managed restoration activities adjacent to the existing floodplain. The Bureau of Land Management has several agricultural leases in this area, totaling approximately 660 acres (Dave Smith, per. comm.). These fields have been under cultivation for years, which indicates a high probability that the soils are suitable for restoration of native vegetation, and have intact water delivery systems. Artificial seeding or planting of native riparian species could provide additional blocks of habitat.

In 1938, the Limitrophe Division had an estimated 3,800 acres of willow flycatcher habitat present within the restricted floodplain boundary. In 1994, there was approximately 667 acres of occupied and potentially suitable but unoccupied habitat present. While intensive water management may not be able to fully reproduce 3,800 acres of willow flycatcher habitat, it is not without reason to speculate that 1,500 to 2,000 acres could be reproduced and maintained within this reach if water was allowed to flow past Morelos Dam. At a minimum, 700 acres could be maintained and enhanced through management of agricultural return flows.

The Limitrophe Division presents a lot of challenges as well as opportunities. While the east side of the Colorado River lies within the United States, the west side is Mexican territory. Consequently, any large-scale restoration activities within the floodplain should be done with approval from Mexico. Mexican concerns with water quality issues also need to be addressed, especially if agricultural return flows are utilized in any floodplain restoration. Protection measures within the Limitrophe will be hard to enforce due to the proximity of Yuma, Arizona. Access closures will be difficult to enforce. Man-caused wildfire will be a constant threat. Channel capacity within the Limitrophe is of major concern to the metropolitan Yuma area. Increasing riparian habitat without maintaining the ability to convey flood flows could increase the potential for major flood events within the City of Yuma.

The second major stretch of the Colorado River, within the Yuma Valley, which presents large-scale restoration potential is the area between the confluence of the Gila River and Prison Hill. The Gila River flood of 1992-93 naturally reproduced over 300 acres of cottonwood-willow habitat around the confluence. Additional restoration activities have been conducted in this area by Reclamation on a small-scale. Intensive management, such as dredging channels throughout the area, coupled with the proper water management, could create additional habitat within this area.

As with the Limitrophe, the area around the confluence will require active management to provide protection for existing and potential habitat. The Colorado River below the confluence is restricted by levees that protect the City of Yuma, the Quechan Tribal Reservation, and surrounding agricultural lands. Any restoration activity must be accomplished in such a way as to not lessen the effectiveness of these flood control structures. Any activities must be restricted within the present floodplain unless a totally artificial restoration project is attempted on adjacent farm lands. Restoration projects outside of the floodplain would require planting and watering the site (i.e., creating a willow "farm") to such a degree as to make all but the smallest project to expensive to accomplish. Access closure in the area around the confluence would be impossible to achieve, thus increasing the risk of man-caused fire.

The remainder of the Yuma Valley offers limited opportunity for large-scale restoration. The Yuma Division, between Laguna Dam and the confluence of the Colorado and Gila Rivers, does not have an armored bank line; however, only large flood events have affected this area. Any event large enough to produce riparian habitat to the extent needed by willow flycatchers would have an adverse effect on the City of Yuma and the surrounding area, so artificially creating such an event would not be practical.

Opportunities from the head of Canebrake Canyon to Laguna Dam

The amount of habitat suitable for breeding southwestern willow flycatchers has increased from Canebrake Canyon to Laguna Dam since historical times. Occupied and potentially suitable but unoccupied habitat exists from the head of Canebrake Canyon, near Walker Lake, to Imperial Dam. Opportunities for creating more habitat exist on Imperial National Wildlife Refuge, north of Martinez Lake. Currently, Imperial National Wildlife Refuge, Reclamation, and Ducks Unlimited are cooperating in an effort to create a floodplain restoration demonstration on the refuge as part of RPA#14. The data collected during this study may help future efforts in large-scale restoration of riparian habitat. The Fish and Wildlife Service and Reclamation have also established a native plant nursery and have conducted several native riparian vegetation planting demonstrations at Imperial Refuge. There are other opportunities within Imperial Refuge, especially along the northern shore of Martinez Lake, for future riparian restoration projects.

The second area, within this stretch of the river, that has restoration potential is area that lies between Imperial Dam and Laguna Dam. Reclamation has proposed a large-scale restoration project within this area that would benefit many species, including the southwestern willow flycatcher. The proposed project would entail installing an outlet structure along the main river channel, just below Imperial Dam, at a junction with an old river meander that has become overgrown with saltcedar. The old meander would then be

dredged, providing a source of water to the east side of the area. Other proposed projects within this area include the creation of a RPA#14 demonstration site on a recently farmed, former Bureau of Land Management (BLM) agricultural lease in the Mittry Lake-Betty's Kitchen area above Laguna Dam.

Opportunities within the "Great Valley"

Historically, the Great Valley (the area between Parker, Arizona, and the head of Canebrake Canyon) contained approximately half of all the willow flycatcher habitat present between the Grand Canyon and Mexico. Agricultural development, river channelization, and bank line stabilization have eliminated almost all of the historical habitat. Occupied and potentially suitable but unoccupied habitat is limited to a few areas around backwater lakes, mostly on federally managed lands. Opportunities for large-scale restoration projects are limited as well. Soil salinity and depth to ground water are constant problems throughout the Great Valley.

Cibola National Wildlife Refuge has some limited areas where potential restoration projects might be undertaken. Currently, the Fish and Wildlife Service, Reclamation, and Ducks Unlimited have partnered to rehabilitate an old river meander on the Island Unit of Cibola Refuge as part of RPA#14. Data gathered in this study will be used to help determine possible new restoration techniques for large-scale restoration activities. Several additional areas within the refuge have potential. Hart Mine Marsh, on the Arizona side of the river east of the Cibola Dry Cut, has potential to be rehabilitated as both flycatcher habitat and, possibly, razorback sucker habitat. The areas between the river and the levee along both banks of the Dry Cut within the refuge boundaries could become a potential restoration area by either breaching the armored bank line of the river or by removing enough soil to get the soil surface within 3 to 4 feet of the river elevation and placing conduits between the river and these newly scoured areas so that periodic managed flood events could occur within these areas. Another source of potential restoration projects is to rehabilitate old or currently used agricultural areas within the refuge boundary, such as the farm fields due west of the refuge headquarters.

A list of other potential restoration sites within the Great Valley is somewhat limited. There is a 3,500 acre block of agricultural land adjacent to Cibola Refuge to the north that has been included in a proposed land exchange with the federal government. Most of this land has been under agriculture for many years and may be suitable for riparian restoration. However, the depth to groundwater in this area makes active management of any restoration project essential, so water rights must be included with any purchase or exchange of this land. A second area of approximately 180 acres on Cibola Island, just to the west of the proposed exchange lands, may be for sale. This area, like the exchange lands, has been under agriculture for many years

and should be suitable for restoration of native riparian species. Again, active management will be required at this site, as the depth to groundwater averages around 12 feet. On the east side of the river, below the I-10 bridge at Blythe, there is some potential to restore and enhance habitat near the occupied site below Ehrenberg, Arizona. As with the river side areas at Cibola Refuge, this restoration would require removal of the stabilized bank line or a large-scale construction operation, including soil removal and placement of culverts to transport water from the river, through the levee, to the site.

At the south end of the valley, between Cibola National Wildlife Refuge and BLM land near Walker Lake, is a small parcel of privately owned land with occupied habitat. This land is presently owned by Catellus Corporation and has been recently included as part of a potential land exchange between Catellus and the Federal government. The land exchange is on hold and may not occur due to other mitigating factors. If the exchange does not go through, Catellus may be amenable to an outright purchase of this property. The Gilmore's Camp property, as it is known, contains approximately 115 acres of occupied habitat.

At the north end of the Great Valley, lies the Colorado River Indian Tribal Reservation (CRIT). The CRIT have been actively conducting restoration projects within the past five years. Currently, the CRIT, Reclamation, Ducks Unlimited, and the MSCP have entered into a cooperative project to restore the Deer Island backwater system within the Ahakah Tribal Preserve. Future restoration projects may be conducted along that stretch of the river.

Other potential restoration projects within the Great Valley would require retiring BLM agricultural leases or the outright purchase of privately owned agricultural lands within the valley. The viability of any potential project would have to be evaluated on a case by case basis. Most, if not all, restoration projects on former or current agricultural lands would require water rights to effectively manage these areas for willow flycatcher.

Opportunities within the Chemehuevis Valley and along the Lower Bill Williams River

Chemehuevis Valley now lies under Lake Havasu. The shoreline of Lake Havasu is not conducive to native riparian restoration, as the majority of the shoreline is creosote desert. The Parker Strip, between Parker Arizona and Parker Dam, also has little to no potential for riparian restoration.

The only area within this portion of the river that could be considered for potential restoration activities is the Lower Bill Williams River. The majority of the Lower Bill Williams River floodplain is comprised of lands within the Bill Williams River National Wildlife Refuge. The Bill Williams Refuge contains the last of the large cottonwood-willow gallery forests along the

Lower Colorado River. Approximately 806 acres of the Bill Williams Refuge is considered to be occupied habitat. In 1990, a wildfire burned approximately 500 acres of cottonwood-willow forest at the forest-marsh interface. Since that time, most of this area has regenerated with saltcedar. The potential to restore habitat within the old burn area is good, as the Fish and Wildlife Service and the Corps of Engineers have reached an agreement on regulating water flow down the Bill Williams from Alamo Dam. Several other sites (old fields on the north side of the river) on the refuge have potential for restoration as well.

One additional area along the Lower Bill Williams River has great restoration potential. Planet Ranch is located adjacent to the refuge on the upstream side. Planet Ranch is owned by the City of Scottsdale, Arizona. Scottsdale would like to sell the ranch and has entertained offers in the past. Planet Ranch is approximately 8,400 acres, of which 2,300 acres are located within the floodplain of the Bill Williams River. Most of the 2,300 acres within the bottom lands have been irrigated in the past and are suitable for riparian restoration. Planet Ranch would also come with water rights so that active management would be possible. Access to this area is difficult and could be limited very easily. An old county road runs along the Bill Williams from Arizona Highway 95 until a point within the refuge that was washed out in the 1993 flood. This road could be improved and gated to allow access for fire vehicles while limiting public access. Scottsdale purchased Planet Ranch for approximately 8 million dollars in 1984 and has asked for 15 million dollars. The asking price is well above the most recent government appraisal, making purchase by the federal government unlikely.

Opportunities within Mohave Valley

Restoration opportunities within the Mohave Valley are limited to Havasu National Wildlife Refuge and, possibly, on Fort Mojave Tribal lands. Topock Marsh, where the largest contiguous block of occupied southwestern willow flycatcher habitat can be found, lies within the boundaries of Havasu National Wildlife Refuge. The occupied habitat extends from the north end of the marsh south along three quarters of the marsh. The southern end of the marsh, near Beal Lake, has potential to become flycatcher habitat as well. In 1998, a wildfire burned 2,500 acres just west of the occupied habitat. Unfortunately, little water exists within the burned area to create willow flycatcher habitat, although the potential does exist on the southeast portion of the burn area from Glory Hole to Beal Lake. Approximately 500 acres of occupied habitat within the refuge were burned and could be replaced. The Fish and Wildlife Service has written a fire rehabilitation plan for this area. Several other possibilities exist near Pintail Slough, at the north end of Topock Marsh.

Lower Gila River

The Lower Gila River, between Wellton, Arizona and the confluence of the Gila and Colorado Rivers, offers several opportunities for large-scale restoration and enhancement activities. The 1992-93 Gila flood regenerated several thousand acres of new cottonwood-willow stands in the Wellton area and the area between the Arizona Route 95 bridge to the confluence. Reclamation is currently under negotiation with the Wellton-Mohawk Irrigation District to enter into a land exchange that would give Reclamation control over more than 1,000 acres along the Gila River in the Antelope Hill area, near Wellton. Many of these acres have newly established willow stands where migrant willow flycatchers have been observed. The potential for restoration and enhancement of willow flycatcher habitat here is extremely good.

The area near the confluence of the Gila and Colorado also had good regeneration of cottonwood and willow during the 1992-93 flood. Most of this area is privately owned and several landowners have expressed interest in selling these bottom lands. Water rights need to be included in any land purchase in this area, as the Gila River is normally dry for long periods of time within this stretch of the river.

Upper Gila River

The Gila River Valley in western New Mexico supports nearly 40 percent of the known breeding pairs of southwestern willow flycatcher (Marshall, in press). The land found within the Gila-Cliff Valley and Redrock Valley, along the Gila River, is mostly privately owned. There are blocks of land owned and managed by the Bureau of Land Management, the U.S. Forest Service, and the Bureau of Reclamation within the Gila-Cliff Valley and Redrock Valley. The Nature Conservancy (TNC) also maintains preserve lands within the Gila-Cliff Valley.

The purchase of conservation easements or acquisition of private lands within the Gila-Cliff Valley and Redrock Valley should be a high priority of any range-wide southwestern willow flycatcher management strategy. TNC has identified 38 parcels, totaling approximately 7,200 acres, containing occupied, potential, or restorable willow flycatcher breeding habitat (TNC, 1998). Land values within the Gila-Cliff Valley range from $1,500 to $3,500 per acre, without water rights. Phelps-Dodge Corporation owns most water rights in the valley.

Land acquisition priorities are primarily based on a biological assessment that includes the presence of occupied habitat, the quality and quantity of habitat or the restoration potential of the site, and the proximity to private preserve lands or federal lands that are currently managed, at least in part, for the southwestern willow flycatcher or compatible species. Property will be acquired only from willing landowners and alternative methods of protecting habitat, such as conservation easements or management agreements, should be attempted where acquisition is not feasible or desired.

San Pedro River

The Lower San Pedro River, from approximately three miles south of Aravaipa Creek to its junction with the Gila River at Winkleman, Arizona, is another important concentration of southwestern willow flycatcher breeding habitat. Approximately 7 percent of the known breeding pairs of southwestern willow flycatcher are found within this stretch of the San Pedro River (Marshall, in press). The majority of the land along the Lower San Pedro River is privately owned, although the Bureau of Reclamation and the TNC own land within this area. The State of Arizona also owns sections within this stretch of the river.

Reclamation, in conjunction with the TNC, have been actively involved in purchasing southwestern willow flycatcher habitat along the San Pedro in partial fulfillment of the Biological Opinion issued on Roosevelt Dam by the Fish and Wildlife Service on July 25, 1996. Opportunities exist to increase these efforts through the Lower Colorado River Biological Opinion. TNC has identified 35 privately owned parcels that contain occupied, potential or restorable habitat along the Lower San Pedro, totaling approximately 4,800 acres (TNC, 1998). These parcels sometimes include adjacent upland habitats due to the confined floodplain present within this stretch of the San Pedro. Land values range from approximately $1,125 to $2,300 per acre.

The TNC has identified four additional parcels, totaling over 1,000 acres, upstream from the Lower San Pedro sites, near Cascabel, Arizona. Southwestern willow flycatcher surveys were conducted on one parcel in 1993 and 10 birds were encountered; however, no nests were documented. These four sites are listed due to their restoration potential, primarily. They include some of the best remaining native riparian habitat in the lower basin of the San Pedro River. Response of native riparian species to restoration activities on adjacent BLM lands indicate a high potential of restoring willow flycatcher habitat on these four parcels. Land values are slightly less in the Cascabel area, ranging from $600 to $1,500 per acre (TNC, 1998).

Virgin River

Nesting southwestern willow flycatchers have been documented along the Lower Virgin River on the Overton Wildlife Management Area, managed by Nevada Division of Wildlife, and on National Park Service property at the Virgin River Delta (McKernan and Braden, 1998). Approximately 620 acres of occupied, potential or restorable habitat lies on privately owned land between these two protected areas. Twenty-six individual owners own 36 separate parcels within this stretch of the Virgin River. Land values range from $450 to $1,500 per acre (TNC, 1998).

Approximately one half of the area between Overton Wildlife Management Area and Lake Mead National Recreation Area is currently under BLM management. By obtaining the privately owned property within this area, state and federal agencies would have management responsibility from approximately two miles below Riverside Bridge to Lake Mead, a 15 mile stretch of the Lower Virgin River. Access to this area could easily be restricted during the willow flycatcher breeding season, thus protecting nesting birds from disturbance.

SUMMARY

This report has been submitted to the MSCP in accordance to RPA#11 of the BO on Reclamation's routine operation and maintenance of the Lower Colorado River (USFWS, 1997). RPA#11 directs Reclamation to submit a plan to the MSCP for funding and implementation of a long-term program to restore, enhance, and protect southwestern willow flycatcher breeding habitat along the Lower Colorado River. In order to determine the amount of habitat needed for compliance of RPA#11, an estimate of historical habitat was necessary. An analysis of 1938 aerial photography, historical journals, historical photographs, surveyor plats, and historical maps indicated approximately 89,200 acres of potentially suitable willow flycatcher breeding habitat between the Grand Canyon and the Southerly International Boundary between the US and Mexico. This estimate is a "snapshot in time" and must be placed in context with the natural flood cycles and human-caused disturbances along the Lower Colorado River at this time. Analysis of these other factors indicates that 89,200 acres was, in all likelihood, at the high end of the natural range of potential habitat.

Southwestern willow flycatcher surveys, conducted by San Bernardino County Museum, estimate over 6,045 acres of occupied willow flycatcher breeding habitat along the Lower Colorado River in 1998. Analysis of vegetation type maps indicate another approximately 11,197 acres of potentially suitable but unoccupied habitat between Davis Dam and the SIB.